

Example #1: A child stands on a merry-go-round that is spun around with a period of 2.3 s.

- a) If the child is 0.65 m from the center of the merry-go-round, what is her acceleration?**
- b) If she then moves to a distance of 1.4 m from the center, at what speed will she be travelling?**

$$a) \quad a_c = \frac{4\pi^2 r}{T^2} = \frac{4\pi^2 (.65)}{2.3^2}$$

$a_c = 4.9 \text{ m/s}^2$

$$b) \quad v = \frac{2\pi r}{T} = \frac{2\pi (1.4)}{2.3 \rightarrow \text{constant}}$$

$v = 3.8 \text{ m/s}$